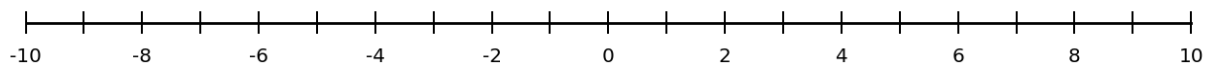


Graphing Inequalities and Interval Notation

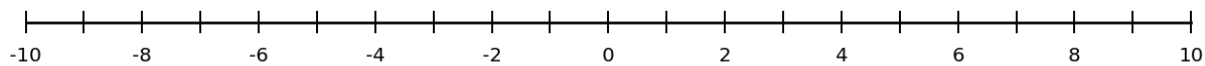
Directions: Follow the directions for each set of problems.

Problems 1-5: The inequality is already solved. Graph it on the number line and write it in interval notation.

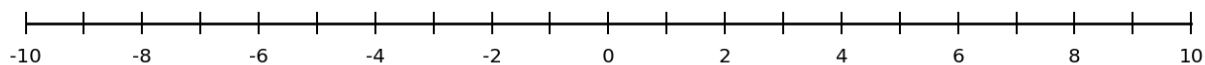
1. $x \geq -3$



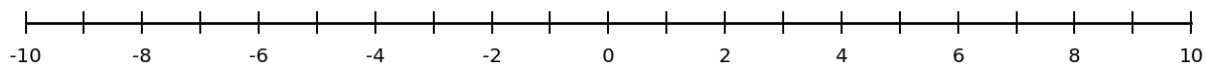
2. $x < 1$



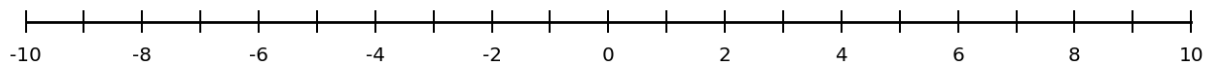
3. $-5 < x \leq 4$



4. $x \leq -2$ or $x > 6$

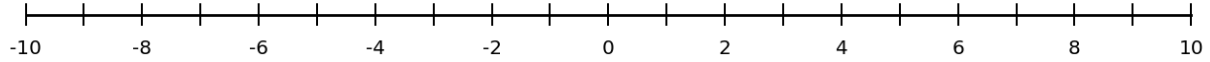


5. $-4 \leq x < 1$

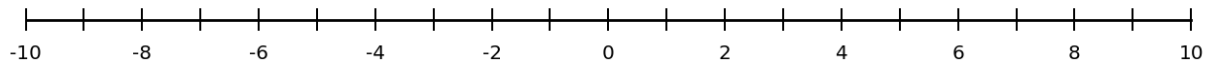


Problems 6-11: Solve each inequality. Then graph the solution on the number line and write the solution in interval notation.

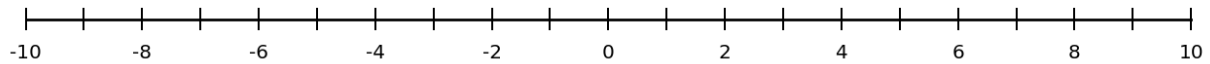
6. $2x - 5 \leq 11$



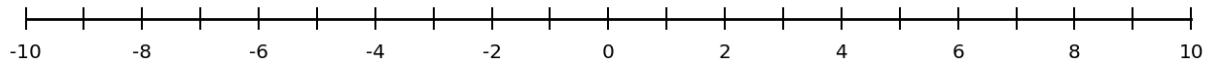
7. $-4a + 3 > 19$



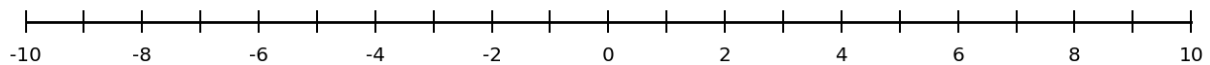
8. $3(m + 2) \geq 18$



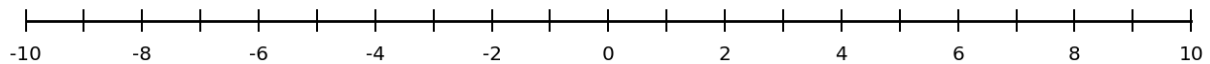
9. $5x - 4 < 2x + 11$



10. $-2 \leq x + 1 < 6$

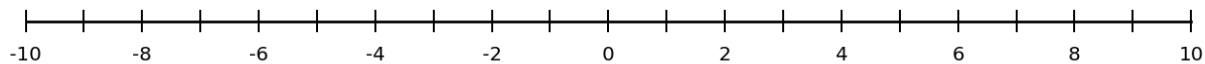


11. $-8 < 2y \leq 10$

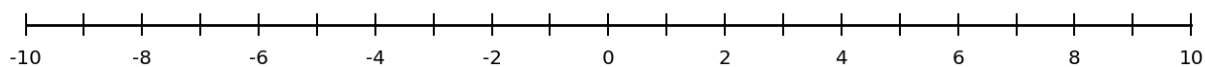


Problems 12-16: Interval notation is given. Write the solution in inequality form and graph it on the number line.

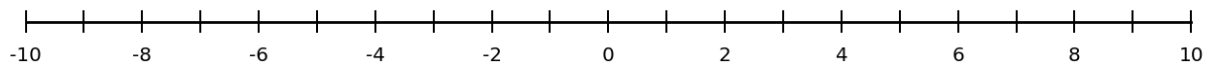
12. $(-5, 4)$



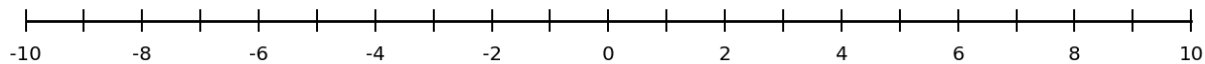
13. $(-\infty, 2)$



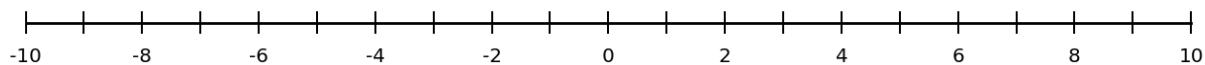
14. $(3, \infty)$



15. $(-\infty, -1) \cup [5, \infty)$

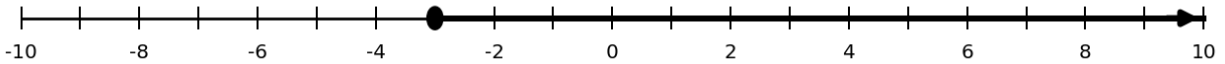


16. $[-2, 6)$



Problems 17-21: A number-line graph is given. Write the solution in inequality form and interval notation.

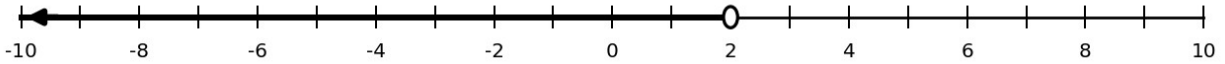
17.



Inequality: _____

Interval notation: _____

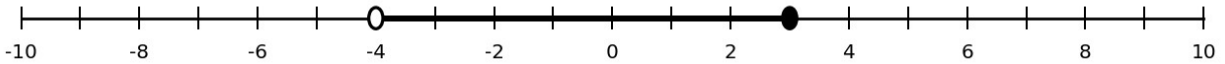
18.



Inequality: _____

Interval notation: _____

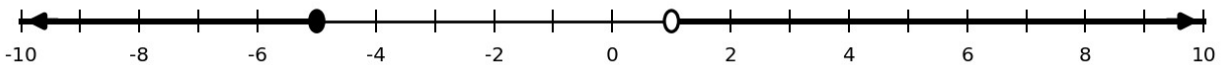
19.



Inequality: _____

Interval notation: _____

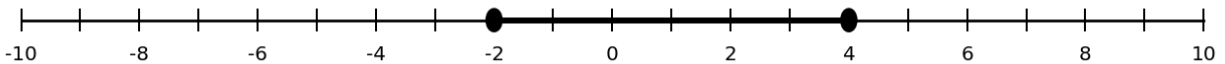
20.



Inequality: _____

Interval notation: _____

21.

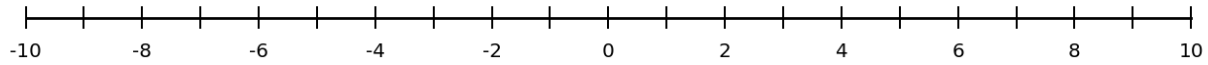


Inequality: _____

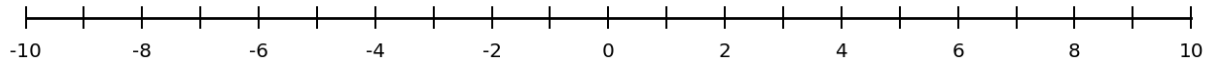
Interval notation: _____

Problems 22-30: Create an example that satisfies each condition. Include every representation requested.

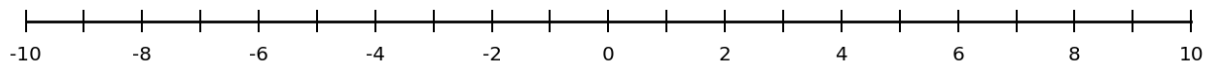
22. Create an inequality whose solution is $(-2, 7)$. Then graph it.



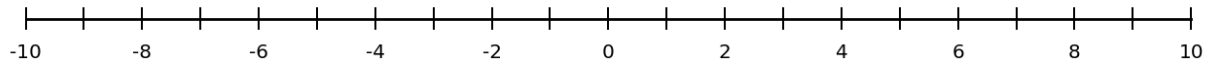
23. Write interval notation for $x \leq -5$ or $x > 2$, and graph the solution.



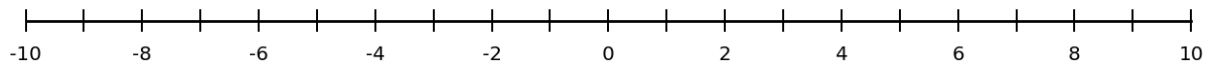
24. Create a compound inequality whose graph is open at -3 and closed at 4 . Then write its interval notation.



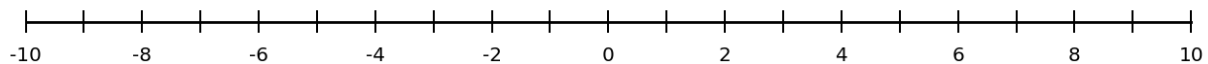
25. Create an inequality whose solution has two separate pieces. Write the interval notation and graph it.



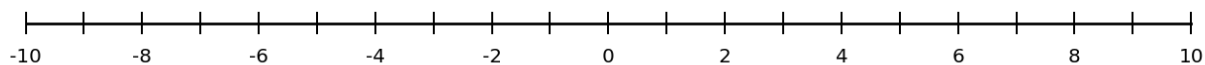
26. Create two different inequalities that have the same solution set. Graph the shared solution set.



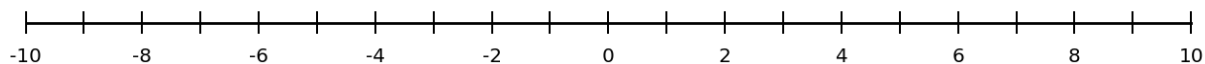
27. Create one interval that includes its left endpoint but not its right endpoint. Write the matching inequality and graph it.



28. Create a linear inequality that requires reversing the inequality symbol and has solution $x > 3$. Then graph it and write interval notation.



29. Create a compound inequality whose solution is $[-4, 1)$. Then graph it.



30. Create a solution set with two disconnected pieces. Give an inequality, interval notation, and a number-line graph for the same set.

